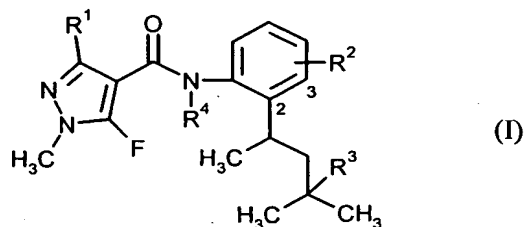


**Patent claims**

## 1. N-substituted pyrazolylcarboxanilides of the formula (I)



5 in which

R¹ represents methyl, trifluoromethyl or difluoromethyl,

R² represents hydrogen, fluorine, chlorine, methyl or trifluoromethyl,

a) R³ represents hydrogen,

R⁴ represents C₁-C₈-alkyl, C₁-C₆-alkylsulphinyl, C₁-C₆-alkylsulphonyl, C₁-C₄-alkoxy-C₁-C₄-alkyl, C₃-C₈-cycloalkyl; C₁-C₆-haloalkyl, C₁-C₄-haloalkylthio, C₁-C₄-haloalkylsulphinyl, C₁-C₄-haloalkylsulphonyl, halo-C₁-C₄-alkoxy-C₁-C₄-alkyl, C₃-C₈-halocycloalkyl having in each case 1 to 9 fluorine, chlorine and/or bromine atoms; formyl, formyl-C₁-C₃-alkyl, (C₁-C₃-alkyl)carbonyl-C₁-C₃-alkyl, (C₁-C₃-alkoxy)carbonyl-C₁-C₃-alkyl; halo-(C₁-C₃-alkyl)carbonyl-C₁-C₃-alkyl, halo-(C₁-C₃-alkoxy)carbonyl-C₁-C₃-alkyl having in each case 1 to 13 fluorine, chlorine and/or bromine atoms; (C₃-C₈-cycloalkyl)carbonyl; (C₃-C₈-halocycloalkyl)carbonyl having 1 to 9 fluorine, chlorine and/or bromine atoms; or -C(=O)C(=O)R⁵, -CONR⁶R⁷ or -CH₂NR⁸R⁹,

b) R³ represents halogen, C₁-C₈-alkyl or C₁-C₈-haloalkyl,

R⁴ represents C₁-C₈-alkyl, C₁-C₆-alkylsulphinyl, C₁-C₆-alkylsulphonyl, C₁-C₄-alkoxy-C₁-C₄-alkyl, C₃-C₈-cycloalkyl; C₁-C₆-haloalkyl, C₁-C₄-haloalkylthio, C₁-C₄-haloalkylsulphinyl, C₁-C₄-haloalkylsulphonyl, halo-C₁-C₄-alkoxy-C₁-C₄-alkyl, C₃-C₈-halocycloalkyl having in each case 1 to 9 fluorine, chlorine and/or bromine atoms; formyl, formyl-C₁-C₃-alkyl, (C₁-C₃-alkyl)carbonyl-C₁-C₃-alkyl, (C₁-C₃-alkoxy)carbonyl-C₁-C₃-alkyl; halo-(C₁-C₃-alkyl)carbonyl-C₁-C₃-alkyl, halo-(C₁-C₃-alkoxy)carbonyl-C₁-C₃-alkyl having in each case 1 to 13 fluorine, chlorine and/or bromine atoms; (C₁-C₈-alkyl)carbonyl, (C₁-C₈-alkoxy)carbonyl, (C₁-C₄-alkoxy-C₁-C₄-alkyl)carbonyl, (C₃-C₈-cycloalkyl)carbonyl; (C₁-C₆-haloalkyl)carbonyl, (C₁-C₆-haloalkoxy)carbonyl, (halo-C₁-C₄-alkoxy-C₁-C₄-alkyl)carbonyl, (C₃-C₈-halo-

cycloalkyl)carbonyl having in each case 1 to 9 fluorine, chlorine and/or bromine atoms; or  $-C(=O)C(=O)R^5$ ,  $-CONR^6R^7$  or  $-CH_2NR^8R^9$ ,

$R^5$  represents hydrogen,  $C_1$ - $C_8$ -alkyl,  $C_1$ - $C_8$ -alkoxy,  $C_1$ - $C_4$ -alkoxy- $C_1$ - $C_4$ -alkyl,  $C_3$ - $C_8$ -cycloalkyl;  $C_1$ - $C_6$ -haloalkyl,  $C_1$ - $C_6$ -haloalkoxy, halo- $C_1$ - $C_4$ -alkoxy- $C_1$ - $C_4$ -alkyl,  $C_3$ - $C_8$ -halocycloalkyl having in each case 1 to 9 fluorine, chlorine and/or bromine atoms,

$R^6$  and  $R^7$  independently of one another, each represent hydrogen,  $C_1$ - $C_8$ -alkyl,  $C_1$ - $C_4$ -alkoxy- $C_1$ - $C_4$ -alkyl,  $C_3$ - $C_8$ -cycloalkyl;  $C_1$ - $C_8$ -haloalkyl, halo- $C_1$ - $C_4$ -alkoxy- $C_1$ - $C_4$ -alkyl,  $C_3$ - $C_8$ -halocycloalkyl having in each case 1 to 9 fluorine, chlorine and/or bromine atoms,

$R^6$  and  $R^7$  furthermore together with the nitrogen atom to which they are attached form a saturated heterocycle having 5 to 8 ring atoms which is optionally mono- or polysubstituted by identical or different substituents from the group consisting of halogen and  $C_1$ - $C_4$ -alkyl; where the heterocycle may contain 1 or 2 further non-adjacent heteroatoms from the group consisting of oxygen, sulphur and  $NR^{10}$ ,

$R^8$  and  $R^9$  independently of one another, represent hydrogen,  $C_1$ - $C_8$ -alkyl,  $C_3$ - $C_8$ -cycloalkyl;  $C_1$ - $C_8$ -haloalkyl,  $C_3$ - $C_8$ -halocycloalkyl having in each case 1 to 9 fluorine, chlorine and/or bromine atoms,

$R^8$  and  $R^9$  furthermore together with the nitrogen atom to which they are attached form a saturated heterocycle having 5 to 8 ring atoms which is optionally mono- or polysubstituted by identical or different substituents from the group consisting of halogen and  $C_1$ - $C_4$ -alkyl, where the heterocycle may contain 1 or 2 further non-adjacent heteroatoms from the group consisting of oxygen, sulphur and  $NR^{10}$ ,

$R^{10}$  represents hydrogen or  $C_1$ - $C_6$ -alkyl.

2. N-substituted pyrazolylcarboxanilides of the formula (I) according to Claim 1 in which

$R^1$  represents methyl, trifluoromethyl or difluoromethyl,

$R^2$  represents hydrogen, fluorine, chlorine, methyl or trifluoromethyl,

a)  $R^3$  represents hydrogen,

$R^4$  represents  $C_1$ - $C_6$ -alkyl,  $C_1$ - $C_4$ -alkylsulphinyl,  $C_1$ - $C_4$ -alkylsulphonyl,  $C_1$ - $C_3$ -alkoxy- $C_1$ - $C_3$ -alkyl,  $C_3$ - $C_6$ -cycloalkyl;  $C_1$ - $C_4$ -haloalkyl,  $C_1$ - $C_4$ -haloalkylthio,  $C_1$ - $C_4$ -haloalkylsulphinyl,  $C_1$ - $C_4$ -haloalkylsulphonyl, halo- $C_1$ - $C_3$ -alkoxy- $C_1$ - $C_3$ -alkyl,  $C_3$ - $C_6$ -halocycloalkyl having in each case 1 to 9 fluorine, chlorine and/or bromine atoms; formyl, formyl- $C_1$ - $C_3$ -alkyl,  $(C_1$ - $C_3$ -alkyl)carbonyl- $C_1$ - $C_3$ -alkyl,  $(C_1$ - $C_3$ -alkoxy)carbonyl- $C_1$ - $C_3$ -alkyl; halo- $(C_1$ - $C_3$ -alkyl)carbonyl- $C_1$ - $C_3$ -alkyl, halo- $(C_1$ - $C_3$ -alkoxy)carbonyl- $C_1$ - $C_3$ -alkyl having in each case 1 to 13 fluorine, chlorine and/or bromine atoms;

(C<sub>3</sub>-C<sub>6</sub>-cycloalkyl)carbonyl; (C<sub>3</sub>-C<sub>6</sub>-halocycloalkyl)carbonyl having 1 to 9 fluorine, chlorine and/or bromine atoms; or -C(=O)C(=O)R<sup>5</sup>, -CONR<sup>6</sup>R<sup>7</sup> or -CH<sub>2</sub>NR<sup>8</sup>R<sup>9</sup>,

b) R<sup>3</sup> represents fluorine, chlorine, bromine, iodine, C<sub>1</sub>-C<sub>6</sub>-alkyl or C<sub>1</sub>-C<sub>6</sub>-haloalkyl having 1 to 13 fluorine, chlorine and/or bromine atoms,

R<sup>4</sup> represents C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>1</sub>-C<sub>4</sub>-alkylsulphinyl, C<sub>1</sub>-C<sub>4</sub>-alkylsulphonyl, C<sub>1</sub>-C<sub>3</sub>-alkoxy-C<sub>1</sub>-C<sub>3</sub>-alkyl, C<sub>3</sub>-C<sub>6</sub>-cycloalkyl; C<sub>1</sub>-C<sub>4</sub>-haloalkyl, C<sub>1</sub>-C<sub>4</sub>-haloalkylthio, C<sub>1</sub>-C<sub>4</sub>-haloalkylsulphinyl, C<sub>1</sub>-C<sub>4</sub>-haloalkylsulphonyl, halo-C<sub>1</sub>-C<sub>3</sub>-alkoxy-C<sub>1</sub>-C<sub>3</sub>-alkyl, C<sub>3</sub>-C<sub>6</sub>-halocycloalkyl having in each case 1 to 9 fluorine, chlorine and/or bromine atoms; formyl, formyl-C<sub>1</sub>-C<sub>3</sub>-alkyl, (C<sub>1</sub>-C<sub>3</sub>-alkyl)carbonyl-C<sub>1</sub>-C<sub>3</sub>-alkyl, (C<sub>1</sub>-C<sub>3</sub>-alkoxy)carbonyl-C<sub>1</sub>-C<sub>3</sub>-alkyl; halo-(C<sub>1</sub>-C<sub>3</sub>-alkyl)carbonyl-C<sub>1</sub>-C<sub>3</sub>-alkyl, halo-(C<sub>1</sub>-C<sub>3</sub>-alkoxy)carbonyl-C<sub>1</sub>-C<sub>3</sub>-alkyl having in each case 1 to 13 fluorine, chlorine and/or bromine atoms;

(C<sub>1</sub>-C<sub>6</sub>-alkyl)carbonyl, (C<sub>1</sub>-C<sub>6</sub>-alkoxy)carbonyl, (C<sub>1</sub>-C<sub>3</sub>-alkoxy-C<sub>1</sub>-C<sub>3</sub>-alkyl)carbonyl, (C<sub>3</sub>-C<sub>6</sub>-cycloalkyl)carbonyl; (C<sub>1</sub>-C<sub>4</sub>-haloalkyl)carbonyl, (C<sub>1</sub>-C<sub>4</sub>-haloalkoxy)carbonyl, (halo-C<sub>1</sub>-C<sub>3</sub>-alkoxy-C<sub>1</sub>-C<sub>3</sub>-alkyl)carbonyl, (C<sub>3</sub>-C<sub>6</sub>-halocycloalkyl)carbonyl having in each case 1 to 9 fluorine, chlorine and/or bromine atoms; or -C(=O)C(=O)R<sup>5</sup>, -CONR<sup>6</sup>R<sup>7</sup> or -CH<sub>2</sub>NR<sup>8</sup>R<sup>9</sup>,

R<sup>5</sup> represents hydrogen, C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>1</sub>-C<sub>4</sub>-alkoxy, C<sub>1</sub>-C<sub>3</sub>-alkoxy-C<sub>1</sub>-C<sub>3</sub>-alkyl, C<sub>3</sub>-C<sub>6</sub>-cycloalkyl; C<sub>1</sub>-C<sub>4</sub>-haloalkyl, C<sub>1</sub>-C<sub>4</sub>-haloalkoxy, halo-C<sub>1</sub>-C<sub>3</sub>-alkoxy-C<sub>1</sub>-C<sub>3</sub>-alkyl, C<sub>3</sub>-C<sub>6</sub>-halocycloalkyl having in each case 1 to 9 fluorine, chlorine and/or bromine atoms,

R<sup>6</sup> and R<sup>7</sup> independently of one another, each represent hydrogen, C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>1</sub>-C<sub>3</sub>-alkoxy-C<sub>1</sub>-C<sub>3</sub>-alkyl, C<sub>3</sub>-C<sub>6</sub>-cycloalkyl; C<sub>1</sub>-C<sub>4</sub>-haloalkyl, halo-C<sub>1</sub>-C<sub>3</sub>-alkoxy-C<sub>1</sub>-C<sub>3</sub>-alkyl, C<sub>3</sub>-C<sub>6</sub>-halocycloalkyl having in each case 1 to 9 fluorine, chlorine and/or bromine atoms,

R<sup>6</sup> and R<sup>7</sup> furthermore together with the nitrogen atom to which they are attached form a saturated heterocycle having 5 to 8 ring atoms which is optionally mono- to tetrasubstituted by identical or different substituents from the group consisting of halogen and C<sub>1</sub>-C<sub>4</sub>-alkyl, where the heterocycle may contain 1 or 2 further non-adjacent heteroatoms from the group consisting of oxygen, sulphur and NR<sup>10</sup>,

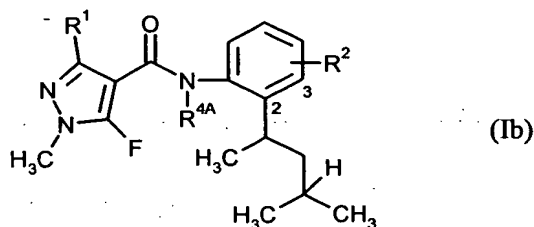
R<sup>8</sup> and R<sup>9</sup> independently of one another, represent hydrogen, C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>3</sub>-C<sub>6</sub>-cycloalkyl; C<sub>1</sub>-C<sub>4</sub>-haloalkyl, C<sub>3</sub>-C<sub>6</sub>-halocycloalkyl having in each case 1 to 9 fluorine, chlorine and/or bromine atoms,

R<sup>8</sup> and R<sup>9</sup> furthermore together with the nitrogen atom to which they are attached form a saturated heterocycle having 5 to 8 ring atoms which is optionally mono- to tetrasubstituted by identical or different substituents from the group consisting of

halogen and C<sub>1</sub>-C<sub>4</sub>-alkyl, where the heterocycle may contain 1 or 2 further non-adjacent heteroatoms from the group consisting of oxygen, sulphur and NR<sup>10</sup>,

R<sup>10</sup> represents hydrogen or C<sub>1</sub>-C<sub>4</sub>-alkyl.

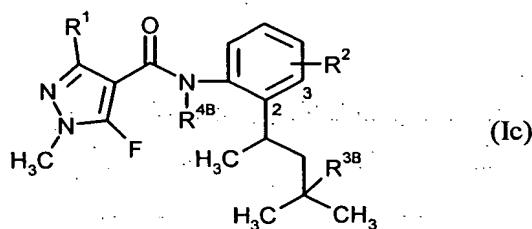
3. N-substituted pyrazolylcarboxanilides of the formula (Ib)



in which

R<sup>4A</sup> represents C<sub>1</sub>-C<sub>8</sub>-alkyl, C<sub>1</sub>-C<sub>6</sub>-alkylsulphinyl, C<sub>1</sub>-C<sub>6</sub>-alkylsulphonyl, C<sub>1</sub>-C<sub>4</sub>-alkoxy-C<sub>1</sub>-C<sub>4</sub>-alkyl, C<sub>3</sub>-C<sub>8</sub>-cycloalkyl; C<sub>1</sub>-C<sub>6</sub>-haloalkyl, C<sub>1</sub>-C<sub>4</sub>-haloalkylthio, C<sub>1</sub>-C<sub>4</sub>-haloalkylsulphinyl, C<sub>1</sub>-C<sub>4</sub>-haloalkylsulphonyl, halo-C<sub>1</sub>-C<sub>4</sub>-alkoxy-C<sub>1</sub>-C<sub>4</sub>-alkyl, C<sub>3</sub>-C<sub>8</sub>-halocycloalkyl having in each case 1 to 9 fluorine, chlorine and/or bromine atoms; formyl, formyl-C<sub>1</sub>-C<sub>3</sub>-alkyl, (C<sub>1</sub>-C<sub>3</sub>-alkyl)carbonyl-C<sub>1</sub>-C<sub>3</sub>-alkyl, (C<sub>1</sub>-C<sub>3</sub>-alkoxy)carbonyl-C<sub>1</sub>-C<sub>3</sub>-alkyl; halo-(C<sub>1</sub>-C<sub>3</sub>-alkyl)carbonyl-C<sub>1</sub>-C<sub>3</sub>-alkyl, halo-(C<sub>1</sub>-C<sub>3</sub>-alkoxy)carbonyl-C<sub>1</sub>-C<sub>3</sub>-alkyl having in each case 1 to 13 fluorine, chlorine and/or bromine atoms; (C<sub>3</sub>-C<sub>8</sub>-cycloalkyl)carbonyl; (C<sub>3</sub>-C<sub>8</sub>-halocycloalkyl)carbonyl having 1 to 9 fluorine, chlorine and/or bromine atoms; or -C(=O)C(=O)R<sup>5</sup>, -CONR<sup>6</sup>R<sup>7</sup> or -CH<sub>2</sub>NR<sup>8</sup>R<sup>9</sup>, and R<sup>1</sup>, R<sup>2</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup> and R<sup>9</sup> are as defined in Claim 1.

4. N-substituted pyrazolylcarboxanilides of the formula (Ic)



in which

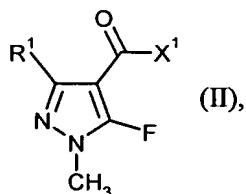
R<sup>3B</sup> represents halogen, C<sub>1</sub>-C<sub>8</sub>-alkyl or C<sub>1</sub>-C<sub>8</sub>-haloalkyl,

R<sup>4B</sup> represents C<sub>1</sub>-C<sub>8</sub>-alkyl, C<sub>1</sub>-C<sub>6</sub>-alkylsulphinyl, C<sub>1</sub>-C<sub>6</sub>-alkylsulphonyl, C<sub>1</sub>-C<sub>4</sub>-alkoxy-C<sub>1</sub>-C<sub>4</sub>-alkyl, C<sub>3</sub>-C<sub>8</sub>-cycloalkyl; C<sub>1</sub>-C<sub>6</sub>-haloalkyl, C<sub>1</sub>-C<sub>4</sub>-haloalkylthio, C<sub>1</sub>-C<sub>4</sub>-haloalkylsulphinyl, C<sub>1</sub>-C<sub>4</sub>-haloalkylsulphonyl, halo-C<sub>1</sub>-C<sub>4</sub>-alkoxy-C<sub>1</sub>-C<sub>4</sub>-alkyl, C<sub>3</sub>-C<sub>8</sub>-halocycloalkyl having in each case 1 to 9 fluorine, chlorine and/or bromine atoms; formyl, formyl-C<sub>1</sub>-C<sub>3</sub>-alkyl, (C<sub>1</sub>-C<sub>3</sub>-alkyl)carbonyl-C<sub>1</sub>-C<sub>3</sub>-alkyl, (C<sub>1</sub>-C<sub>3</sub>-alkoxy)carbonyl-C<sub>1</sub>-

$C_3$ -alkyl; halo- $(C_1-C_3\text{-alkyl})$ carbonyl- $C_1-C_3$ -alkyl, halo- $(C_1-C_3\text{-alkoxy})$ carbonyl- $C_1-C_3$ -alkyl having in each case 1 to 13 fluorine, chlorine and/or bromine atoms;  
 $(C_1-C_8\text{-alkyl})$ carbonyl,  $(C_1-C_8\text{-alkoxy})$ carbonyl,  $(C_1-C_4\text{-alkoxy-}C_1-C_4\text{-alkyl})$ carbonyl,  
 $(C_3-C_8\text{-cycloalkyl})$ carbonyl;  $(C_1-C_6\text{-haloalkyl})$ carbonyl,  $(C_1-C_6\text{-haloalkoxy})$ carbonyl,  
 $(\text{halo-}C_1-C_4\text{-alkoxy-}C_1-C_4\text{-alkyl})$ carbonyl,  $(C_3-C_8\text{-halocycloalkyl})$ carbonyl having in  
 each case 1 to 9 fluorine, chlorine and/or bromine atoms; or  $-C(=O)C(=O)R^5$ ,  
 $-\text{CONR}^6R^7$  or  $-\text{CH}_2\text{NR}^8R^9$ ,  
 and  $R^1, R^2, R^5, R^6, R^7, R^8$  and  $R^9$  are as defined in Claim 1.

5. N-substituted pyrazolylcarboxanilides of the formula (I) according to Claim 1 in which  $R^4$  represents formyl.  
 6. N-substituted pyrazolylcarboxanilides of the formula (I) according to Claim 1 in which  $R^4$  represents  $-C(=O)C(=O)R^5$  and  $R^5$  is as defined in Claim 1.  
 7. Process for preparing compounds of the formula (I) according to Claim 1, characterized in that

a) carboxylic acid derivatives of the formula (II)

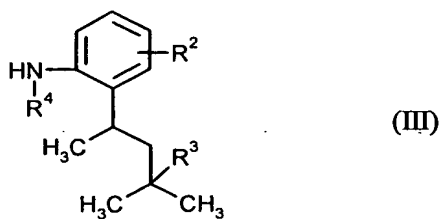


in which

$R^1$  is as defined above and

$X^1$  represents halogen or hydroxyl

are reacted with an aniline derivative of the formula (III)

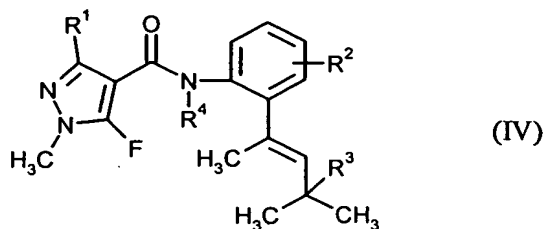


in which  $R^2, R^3$  and  $R^4$  are as defined above,

if appropriate in the presence of a catalyst, if appropriate in the presence of a condensing agent, if appropriate in the presence of an acid binder and if appropriate in the presence of a diluent,

or

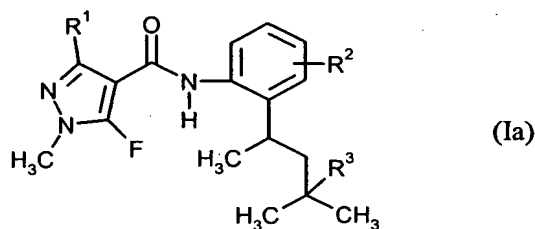
- b) pyrazolylcarboxanilides of the formula (IV)



in which  $R^1$ ,  $R^2$ ,  $R^3$  and  $R^4$  are as defined above  
are hydrogenated, if appropriate in the presence of a diluent and if appropriate in the presence of a catalyst,

or

- c) pyrazolylcarboxanilides of the formula (Ia)



in which  $R^1$ ,  $R^2$  and  $R^3$  are as defined above  
are reacted with halides of the formula (V)



in which

$R^4$  is as defined above and

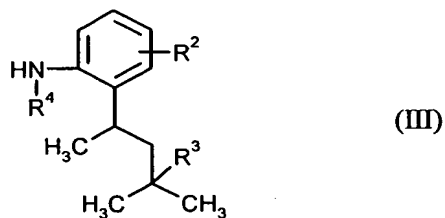
$X^2$  represents chlorine, bromine or iodine

in the presence of a base and in the presence of a diluent.

8. Compositions for controlling unwanted microorganisms, characterized in that they comprise at least one N-substituted pyrazolylcarboxanilide of the formula (I) according to Claim 1, in addition to extenders and/or surfactants.
9. Use of N-substituted pyrazolylcarboxanilides of the formula (I) according to Claim 1 for controlling unwanted microorganisms.
10. Method for controlling unwanted microorganisms, characterized in that N-substituted pyrazolylcarboxanilides of the formula (I) according to Claim 1 are applied to the microorganisms and/or their habitat.

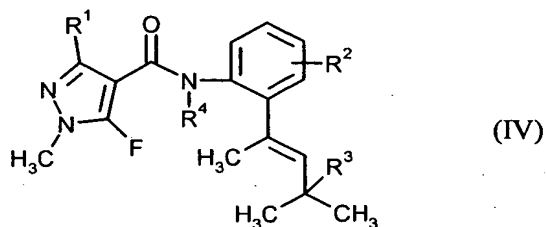
11. Process for preparing compositions for controlling unwanted microorganisms, characterized in that N-substituted pyrazolylcarboxanilides of the formula (I) according to Claim 1 are mixed with extenders and/or surfactants.

- 5 12. Aniline derivatives of the formula (III)



in which R<sup>2</sup>, R<sup>3</sup> and R<sup>4</sup> are as defined in Claim 1.

13. Pyrazolylcarboxanilides of the formula (IV)



in which R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup> and R<sup>4</sup> are as defined in Claim 1.